

U.S. Patent Application Serial No. 09/699,624
Reply to Office Action dated June 9, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (CURRENTLY AMENDED) Stereoscopic device comprising:

at least two apertures, each of said apertures including a light valve, each of said light valves being operative to open at a different predetermined timing;

a multi wavelength light sensor array, and

a controllable multi wavelength illumination unit illuminating a scene, said controllable multi wavelength illumination unit producing at least two separated alternating beams of light, each said beams of light characterized as being in a different range of wavelengths,

a controller connected to said light valves, said multi wavelength light sensor array, and to said controllable multi wavelength illumination unit, said controller coordinating the timing and the operation of said ~~controller timing the operation of said~~ light valves, with said controllable multi wavelength illumination unit, and with said multi wavelength light sensor array, to detect a plurality of images, so that for each of said plurality of images, only a single one of said light valves exhibits an open state and only one of said at least two separated alternating beams of light illuminates the detected scene.

2. (ORIGINAL) The stereoscopic device according to claim 1, wherein said multi wavelength light sensor array includes at least two groups of sensors, where the sensors of each said group detect light in a different range of wavelengths.

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3. (ORIGINAL) The stereoscopic device according to claim 1, wherein said multi-wavelength light sensor array includes a plurality of sensors, each said sensors detecting light in a predetermined range of wavelengths.

4. (ORIGINAL) The stereoscopic device according to claim 1, wherein said controllable multi wavelength illumination unit surrounds said apertures.

5. Cancelled.

6. (ORIGINAL) The stereoscopic device according to claim 1, wherein said controllable multi wavelength illumination unit comprises:

a multi wavelength light source;

a light dispersing unit; and

light guiding means connected between said multi wavelength light sources and said light dispersing unit, thereby guiding light from said multi wavelength light source to said light dispersing unit.

7. (CURRENTLY AMENDED) The stereoscopic device according to claim 6, wherein said light illuminating unit produces at least ~~two~~ two separated alternating beams of light, each said beams of light characterized as being in a different range of wavelengths.

8-9. Cancelled.

10. (ORIGINAL) The stereoscopic device according to claim 1, further comprising capture means, connected to said multi wavelength light sensor array, for capturing data received from said multi wavelength light sensor array.

11. (ORIGINAL) The stereoscopic device according to claim 10, further comprising a storage unit for storing said captured data.

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12. (PREVIOUSLY PRESENTED) The stereoscopic device according to claim 1, further comprising a stereoscopic display unit, connected to said controller, for producing said images.

13. (ORIGINAL) The stereoscopic device according to claim 1, wherein each said different ranges of wavelengths associated with said multi wavelength illumination unit, is selected from the list consisting of:

- substantially visible red color light;
- substantially visible green color light;
- substantially visible blue color light;
- substantially visible cyan color light;
- substantially visible yellow color light;
- substantially visible magenta color light;
- substantially visible infra-red color light;
- substantially visible color light; and
- visible light.

14. (ORIGINAL) The stereoscopic device according to claim 2, wherein each said different ranges of wavelengths, associated with said sensors, is selected from the list consisting of:

- substantially visible red color light;
- substantially visible green color light;
- substantially visible blue color light;

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substantially visible cyan color light;
substantially visible yellow color light;
substantially visible magenta color light;
substantially visible infra-red color light;
substantially visible color light; and
visible light.

15. (ORIGINAL) The stereoscopic device according to claim 1, wherein said multi wavelength light sensor array is a color red-green-blue (RGB) sensor array.
16. (ORIGINAL) The stereoscopic device according to claim 1, wherein said multi wavelength light sensor array is a color cyan-yellow-magenta-green (CYMG) sensor array.
17. (ORIGINAL) The stereoscopic device according to claim 1, further comprising an image processing system connected to said multi wavelength light sensor array and to said controllable multi wavelength illumination unit.
- 18-19. Cancelled.
20. (CURRENTLY AMENDED) Method for detecting a stereoscopic image comprising the steps of:
- providing light valves alternating between at least two apertures, directed at an object;
 - providing a controllable multi wavelength illumination unit producing a sequence of at least two separated illumination beams, at different ranges of wavelengths;
 - controlling the operation of said at least two apertures and the sequence of said at least two separated illumination beams, such that for each said image, only a single one of said

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apertures exhibits an open state and only one of said at least two illumination beams illuminates the detected scene;

providing a multi wavelength light sensor array detecting a plurality of frames, controlling the timing of the operation of said light valves, and coordinating the timing of the operation of said light valves with operation of said multi wavelength light sensor array and with operation of said controllable multi wavelength illumination unit to detect the plurality of frames each for a combination including a selected open one of said apertures and at least a selected illuminating one of said beams.

21. (ORIGINAL) The method of claim 20, further comprising the step of reconstructing a stereoscopic image from said frames.